CLAIMS

1. Device for determining the allowable UV exposure time and/or UV radiation dose of human skin, with at least one UV emitter (7) for emitting UV radiation, at least one UV sensor (8) for receiving the UV radiation diffusely radiated in and/or on the skin (11), and an evaluation unit for determining the radiation absorption.

2. Device in accordance with Claim 1, characterized by the fact that the UV emitter (7) emits UV radiation at which an absorption coefficient μs is greater than or equal to a scattering coefficient μa.

3. Device in accordance with one or more of the preceding claims, characterized by the fact that the UV emitter (7) emits UV radiation with a wavelength smaller than the diameter of a cell nucleus.

4. Device in accordance with one or more of the preceding claims, characterized by the fact that the UV emitter (7) emits UV radiation with a wavelength of 345 nm to 355 nm.

5. Device in accordance with one or more of the preceding claims, characterized by the fact that at least one UV emitter (7) and/or at least one UV sensor (8) is arranged in a housing (9) of a hand-held measuring instrument.

6. Device in accordance with one or more of the preceding claims, characterized by the fact that the housing (9) has an application surface (10) for placing it on the skin (11) of a subject, and that the UV emitter (7) and the UV sensor (8) are arranged at an angle relative to each other in such a way that a reflection of a ray on the optical axes (12, 13) of the UV emitter (7) and the UV sensor (8) occurs at a depth of penetration (e) of up to 1 mm below the

application surface (10).

7. Device in accordance with one or more of the preceding claims, characterized by the fact that the depth of penetration (e) is adjustable.

8. Device in accordance with one or more of the preceding claims, characterized by the fact that the optical axes (12, 13) span an angle (α) of 70° to 110°.

9. Device in accordance with one or more of the preceding claims, characterized by the fact that the angle (α) can be adjusted to vary the depth of penetration (e).

10. Device in accordance with one or more of the preceding claims, characterized by the fact that the height and/or the distance of the UV emitter (7) and the UV sensor (8) above the application surface (10) can be adjusted in order to vary the depth of penetration (e).

11. Device in accordance with one or more of the preceding claims, characterized by the fact that a processor unit computes a mean value of several measurements.

12. Device in accordance with one or more of the preceding claims, characterized by the fact that the processor unit assigns a threshold dose to a measurement and/or a mean value of several measurements.

13. Device in accordance with one or more of the preceding claims, characterized by the fact that the fraction of erythemally-effective UV radiation from a radiation source is stored in an electronic memory and that the processor unit computes the maximum exposure time and/or radiation dose.

14. Device in accordance with one or more of the preceding claims, characterized by the fact that an interface (15, 17, 18) is provided, by which data can be stored and retrieved.

15. Device in accordance with one or more of the preceding claims, characterized by the fact that at least one radiation source is operated via the interface.

16. Device, especially in accordance with one or more of the preceding claims, characterized by the fact that a housing (9) has two pairs of UV sensors (20, 21; 22, 23), that in each pair, the UV sensors (20, 21; 22, 23) are oppositely oriented, and that the two pairs are arranged at an angle of 90° relative to each other.

17. Device in accordance with one or more of the preceding claims, characterized by the fact that the UV sensors (20, 21; 22, 23) are formed by free ends of optical waveguides (24-27).

18. Device in accordance with one or more of the preceding claims, characterized by the fact that a filter mimic is assigned to a free end of an optical waveguide and that the filter mimic causes a short-wave component of the diffusely reflected radiation to be reflected to a greater extent than a long-wave component.

19. Device in accordance with one or more of the preceding claims, characterized by the fact that optical waveguides (24-27) end at a common, second UV sensor (33).

20. Device in accordance with one or more of the preceding claims, characterized by the fact that the four optical waveguides (24-27) end at a common, second UV sensor (33).

21. Device in accordance with one or more of the preceding claims, characterized by the fact that the second UV sensor (33) has a linear characteristic curve over the erythema-effective

spectrum.

22. Device in accordance with one or more of Claims 1 to 19, characterized by the fact that the second sensor has a characteristic curve that conforms to the erythemally-effective spectrum.

23. Device in accordance with one or more of the preceding claims, characterized by the fact that distance between a pair of UV sensors (20, 21) corresponds to the height of a human body on a tanning bed.

24. Device in accordance with one or more of the preceding claims, characterized by the fact that a distance measuring instrument (34) is provided.

25. Device in accordance with one or more of the preceding claims, characterized by the fact that a temperature sensor (35) is provided.

26. Device in accordance with one or more of the preceding claims, characterized by the fact that a UV measurement is initiated by the temperature sensor (35) when an optimum bulb wall temperature of a UV radiation source to be measured in a tanning bed or the like has been reached.

27. Device in accordance with one or more of the preceding claims, characterized by an associated data bank for storing the data measured by the second UV sensor (33).

28. Device in accordance with one or more of the preceding claims, characterized by the fact that the processor unit computes the maximum exposure time and/or radiation dose from the individual data of a subject and a UV radiation source.

29. Device in accordance with one or more of the preceding claims, characterized by the fact that when the maximum exposure time and/or radiation dose is reached, the UV radiation source is shut off.

30. Method for determining the allowable UV exposure time and/or UV radiation dose of human skin, especially with a device in accordance with one or more of the preceding claims, characterized by an individual measurement of the absorption of the erythemally-effective UV radiation in the layer of a subject's skin that develops hyperkeratosis and by the assignment of a UV radiation threshold value.

31. Method in accordance with Claim 26, characterized by the fact that the measurement is carried out by means of direct UV irradiation.

32. Method is accordance with Claim 26, characterized by the fact that the measurement is carried out by means of fluorescence photometry.

33. Method in accordance with one of more of the preceding claims, characterized by the fact that a mean value of several individual measurements is taken.

34. Method in accordance with one of more of the preceding claims, characterized by the fact that the individual measurements are made at different sites.

35. Method in accordance with one of more of the preceding claims, characterized by the fact that the individual measurements are made at different skin depths.

36. Method in accordance with one of more of the preceding claims, characterized by the

fact that a maximum exposure time and/or radiation dose is determined from the threshold value and stored data of a UV radiation source.

37. Method in accordance with one of more of the preceding claims, characterized by the fact that the data are actual data derived from a measurement of the UV radiation source.

38. Method in accordance with one of more of the preceding claims, characterized by its use during an irradiation treatment of a subject.